

Amendments to the Claims

The following listing of claims will replace all prior versions, and listings, of claims in this patent application:

Claims 1 to 32 (canceled).

33. (new) A dental handpiece including mechanical components and comprising a tool-holder assembly for attaching and for rotationally driving a dental instrument about a drive axis, and an assembly for transmitting rotational movement to the tool-holder assembly;

wherein the mechanical components are mounted in interior portions of a body having a head and a handle, wherein the body is formed as a unitary, electrically insulating envelope including one part which serves as the handle and another part which constitutes the head;

wherein the head includes a first housing having at least one opening dimensioned to permit component parts of the head to be introduced into and assembled within interior portions of the first housing;

wherein the handle includes a second, longitudinal housing having a longitudinal axis, and an opening at an end of the handle opposite to the head which is dimensioned to permit internal component parts of the handle to be introduced into and

assembled within interior portions of the second housing, and a lateral opening communicating with the first housing;

wherein electrical current is conducted from a casing associated with the end of the handle opposite to the head, for connection to a drive motor, to the lateral opening communicating with the first housing by internal component parts of the handle; and

wherein the head includes a barrel pinion assembled for rotation about the drive axis, wherein the barrel pinion includes teeth operatively coupled with teeth of an output pinion associated with the internal component parts of the handle, and wherein the barrel pinion is electrically conductive and ensures an electrical connection between the internal component parts of the handle and the dental instrument coupled with the tool-holder assembly.

34. (new) The dental handpiece of claim 33 wherein the electrical current is conducted from the end of the handle opposite to the head to the lateral opening communicating with the first housing by an electrical connection comprised of a chain of component parts for the mechanical transmission of rotational movement to the tool-holder assembly.

35. (new) The dental handpiece of claim 34 wherein the chain of component parts is located inside the handle and include

a socket coupled with the end of the handle opposite to the head, a fixed external race of a first bearing coupled with the socket, a first spring having a first end coupled with the external race of the first bearing and a second, opposite end coupled with a fixed external race of a second bearing, a ring coupled with the external race of the second bearing and retained axially on a first shoulder of the envelope, and a second spring coupled with the ring and axially retained by a second shoulder of the envelope.

36. (new) The dental handpiece of claim 35 wherein the first bearing and the second bearing support a transmission shaft along the longitudinal axis of the handle, and wherein the first spring and the second spring are compression springs having coils external to the transmission shaft.

37. (new) The dental handpiece of claim 35 wherein the head supports two ball bearings having axes aligned with the drive axis, including an upper bearing having an external race coupled with the second spring of the handle and a lower bearing having an elastic washer for taking up axial play in the bearings, wherein the barrel pinion is mounted on a drive shaft, and wherein the barrel pinion is integral with interior races of the two ball bearings, for conducting electricity to and rotationally driving the dental instrument.

38. (new) The dental handpiece of claim 37 wherein the electrical current is conducted from the end of the handle opposite to the head to the dental instrument by the chain of component parts.

39. (new) The dental handpiece of claim 35 wherein the electrical current is conducted from the internal component parts of the handle to the component parts of the head by an elastic connection device.

40. (new) The dental handpiece of claim 39 wherein the elastic connection device includes a first peripheral segment engaged in a groove formed in the race of the second bearing, and a second peripheral segment, opposite to the first peripheral segment, which is supported against head portions of the dental instrument.

41. (new) The dental handpiece of claim 33 wherein the electrical current is conducted from the end of the handle opposite to the head to the lateral opening communicating with the first housing by an electrical connection comprised of a conducting wire.

42. (new) The dental handpiece of claim 33 wherein the first housing receives the tool-holder assembly, and means for

tightening and releasing the dental instrument.

43. (new) The dental handpiece of claim 33 wherein the head contains a turbine, and the body includes fluid channels for operating the turbine.

44. (new) The dental handpiece of claim 33 wherein the head includes a cavity for containing a solid grease that is released on each use from a separating wall between the cavity and the barrel pinion, through an orifice, for lubricating the barrel pinion.

45. (new) The dental handpiece of claim 33 which further includes an attachment for connecting a dental instrument to the tool-holder assembly, wherein the attachment includes a deformable and elastic belt for tightening upon and releasing the dental instrument, wherein at least one part of the belt has a section for engaging an aperture provided in upper portions of the dental instrument, and means for applying releasing forces for releasing the instrument.

46. (new) The dental handpiece of claim 45 wherein the attachment is detachably associated with the tool-holder assembly.

47. (new) The dental handpiece of claim 45 wherein the belt forms a parallelogram having a central zone for retaining a head of the dental instrument in place at the level of the aperture, wherein the parallelogram has a large diagonal including two extremities extending diametrically beyond an envelope defined by the head as two projections, wherein each of the projections is located in a notch in the head, and wherein the projections form means for manually and directly applying forces for releasing the belt.

48. (new) The dental handpiece of claim 47 wherein the belt includes detachments in proximity to the projections, and wherein the detachments rest on peripheral portions of the housing of the head.

49. (new) The dental handpiece of claim 47 wherein the belt further includes a conical part located on an undersurface of the central zone.

50. (new) The dental handpiece of claim 47 wherein the belt further includes two ears forming projections perpendicular to a plane defined by the belt and situated on the same side of the defined plane, and wherein the ears apply tightening forces in cooperation with the barrel pinion.

51. (new) The dental handpiece of claim 50 wherein the ears include conical flanges.

52. (new) The dental handpiece of claim 50 wherein the attachment further includes a push-button having an elastic ring at a lower extremity, for retaining the push-button on the head, an intermediate elastic zone which operates as a return spring for the push-button, and an internal cylindrical insert for deforming the belt and for releasing the tool when the push-button is pressed.

53. (new) The dental handpiece of claim 52 wherein the cylindrical insert has an internal conical form for interacting with complementary conical flanges on the ears of the belt.

54. (new) The dental handpiece of claim 45 wherein the belt has a split structure including an annular shoulder for engaging an annular slot in the dental instrument, and a conical part for interacting with a complementary conical part of a push-button.

55. (new) The dental handpiece of claim 54 wherein the split structure is a split ring including a conical part provided on an undersurface of the split ring for receiving the dental instrument.

56. (new) The dental handpiece of claim 55 wherein the push-button is axially guided by at least one sector arranged on the undersurface and terminated by a conical extremity.

57. (new) The dental handpiece of claim 55 wherein the push-button has elastic blades cut into a cap of the push-button and terminated by clipping slots and a conical base.

58. (new) The dental handpiece of claim 45 wherein the attachment further includes a push-button for applying releasing forces on means for tightening and releasing of the dental instrument.

59. (new) The dental handpiece of claim 58 wherein the push-button is integral with the tool-holder assembly.

60. (new) The dental handpiece of claim 58 wherein the push-button is retained by a clip located in an opening in the head.

61. (new) The dental handpiece of claim 33 wherein the drive axis of the head and the longitudinal axis of the handle form an angle for producing a contra-angle handpiece.

62. (new) The dental handpiece of claim 61 wherein the

angle is between 100° and 130°.

63. (new) The dental handpiece of claim 33 wherein the envelope is a molded part.

64. (new) The dental handpiece of claim 63 wherein the envelope is formed of a polymer material.

65. (new) The dental handpiece of claim 64 wherein the polymer material is PEEK.